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AIR FORCE FELLOWS

AIR UNIVERSITY

A 'FULL SPECTRUM' AIR FORCE

by

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The Chief of Staff of the Air Force stated in September 2008 that the U.S. Air Force was the force of first and last resort. In the current complex environment of failed states, transnational terrorism, and hybrid warfare it seems that in this context, the U.S. Air Force must be prepared to fight along the entire spectrum of conflict. This research paper begins with an analysis of the spectrum of conflict with a novel model envisioned by Mr. Shawn Brimley, a former senior fellow at the Center for a New American Security (CNAS). This model helps explain the current nature of the spectrum of conflict. Next, the paper explores areas along the spectrum of conflict where the U.S. Air Force may have gaps in capabilities that may be exploited by future adversaries. The paper identifies two gaps: one at the lower end of the spectrum that is associated with our current counter insurgencies (COIN) in Iraq and Afghanistan and another gap at the higher end of the spectrum associated with growing anti-access strategies employed by both China and Iran. The paper then posits two force structure recommendations to fill these capabilities. For the lower end counter insurgency portion of the spectrum the paper suggests a COIN aircraft and for the higher end anti-access portion of the spectrum the paper suggests a long range strike system.

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Preface

This research project began as a quest for a new U.S. grand strategy written from an Airman's perspective. The first draft of this paper had a bit of that in it, however, it became clear that my general interest was not in the derivation of a grand strategy but an analysis of the spectrum of conflict. The spectrum of conflict model discussed in this paper is my understanding of the model as explained by Mr. Shawn Brimley, a former senior fellow at the Center for a New American Security (CNAS). I liked how the model helped describe some of the hybrid warfare we have been seeing of late. It also helped me understand where the U.S. Air Force may have some gaps in capabilities that could be solved with new systems. I want to thank Mr. Brimley for those ideas.

The final paper did change for the better and I want to thank Dr. Christopher Hemmer for his time and for helping me make significant improvements to the final drafts.

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Abstract

The Chief of Staff of the Air Force stated in September 2008 that the U.S. Air Force was the force of first and last resort. In the current complex environment of failed states, transnational terrorism, and hybrid warfare it seems that in this context, the U.S. Air Force must be prepared to fight along the entire spectrum of conflict. This research paper begins with an analysis of the spectrum of conflict with a novel model envisioned by Mr. Shawn Brimley, a former senior fellow at the Center for a New American Security (CNAS). This model helps explain the current nature of the spectrum of conflict. Next, the paper explores areas along the spectrum of conflict where the U.S. Air Force may have gaps in capabilities that may be exploited by future adversaries. The paper identifies two gaps: one at the lower end of the spectrum that is associated with our current counter insurgencies (COIN) in Iraq and Afghanistan and another gap at the higher end of the spectrum associated with growing anti-access strategies employed by both China and Iran. The paper then posits two force structure recommendations to fill these capabilities. For the lower end counter insurgency portion of the spectrum the paper suggests a COIN aircraft and for the higher end anti-access portion of the spectrum the paper suggests a long range strike system.

Chapter 1

Introduction

The Air Force plays a critical role in executing a full spectrum of warfare; Air Force leadership strongly states the Air Force is "the force of first and last resort."[1] Will this critical role be true in a future littered with failed states and hybrid warfare—all while the U.S. is constrained by a shrinking defense budget? This future environment may provide tremendous challenge in terms of securing future force structure in the current economic environment and opportunity to the Air Force in terms of a continuing capability to fight along the entire spectrum of conflict. The U.S. will continue to face enemies that seek emerging capabilities and are willing to fight at many different levels of warfare. The U.S. and the Air Force in particular must be prepared for the entire spectrum of conflict. As Secretary Gates stated in the most recent *Foreign Affairs*, "The defining principle of the Pentagon's new National Defense Strategy is balance."[2] Is the Air Force properly calibrated for this environment? Based on the future operating environment and the types of warfare the Air Force might face, I argue that the Air Force needs to add more force structure in order to retain full-spectrum capability. This paper will broadly survey the current and future environment through a novel spectrum of conflict model. The model will identify two areas in which the Air Force needs to 'calibrate' and then make force structure recommendations supporting the recalibration.

Notes

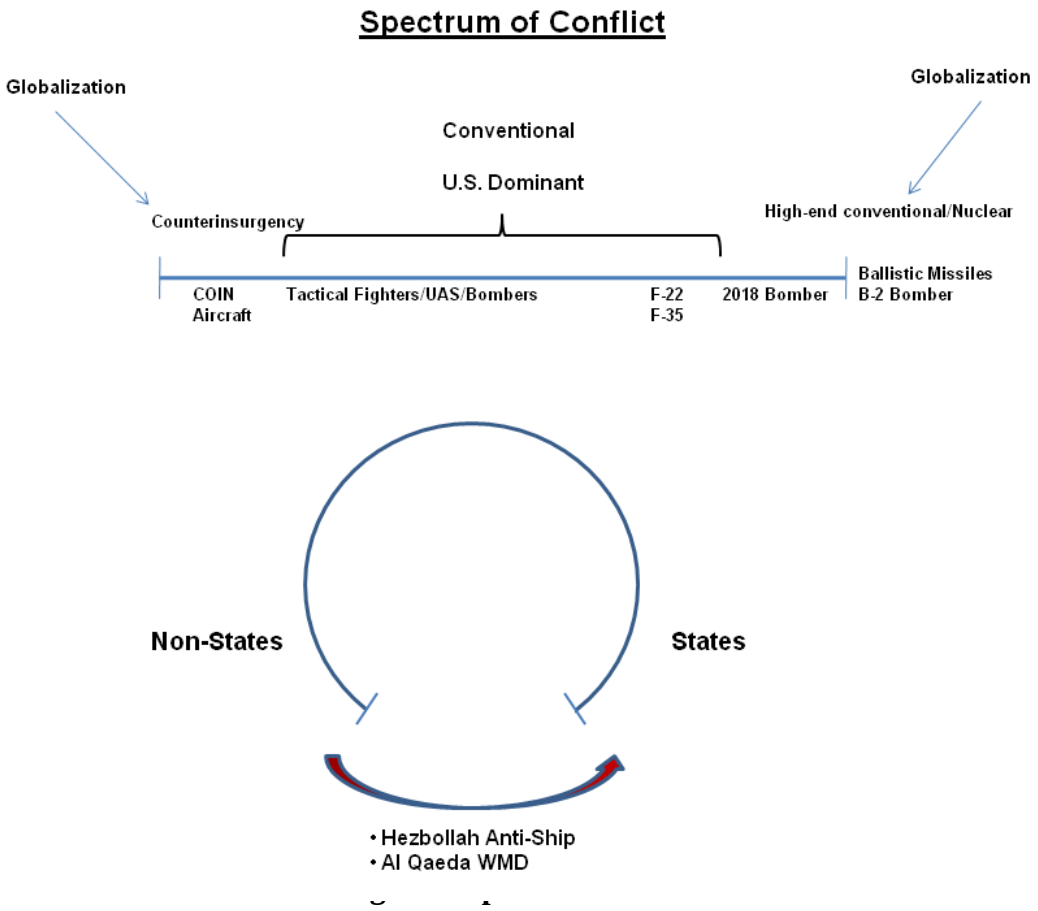
[1] Air Force Message to 110th Congress, 2nd Session, PowerPoint slide.

[2] Gates, Robert M. "A Balanced Strategy, Reprogramming the Pentagon for a New Age." *Foreign Policy,* 2009: 28.

Chapter 2

Spectrum of Conflict Model

Shawn Brimley, Senior Fellow at the Center for New American Security has posited a helpful model to understand the spectrum of warfare and is illustrative in explaining the complexity of today's hybrid warfare. A typical conflict spectrum resembles a number line with low intensity conflict on the far left and high intensity conflict on the far right. This simple model is not sufficient to explain the complexities of hybrid warfare. Other more complex models have emerged and have helped in the understanding of the different types of conflict. Brimley's model begins as a linear model with the left side of the line as the lower end of conflict such as counterinsurgency (COIN), then continues to the right including conventional conflict and moves further to the right and ends with conflicts involving weapons of mass destruction, see figure 1. What is unique about this model is what Brimley suggests next.



Brimley suggests that the recent influence of globalization has exerted pressure on both ends of the spectrum and has caused the two ends to bend downward creating an arc making it nearly circular. Globalization and what it facilitates, the ease in flow of information and technology have allowed unconventional, non-state actors to gain access to higher end means of conventional warfare and the potential for weapons of mass destruction (WMD). The middle of the spectrum model highlights the conventional nature of conflict which the U.S. has dominated without peer for many years and will likely continue to do so for some time.[1] The model also helps visualize the high and low end of the spectrum coming together and can explain how a non-state actor such as al Qaeda can conceivably bypass the conventional and

by obtaining WMD proceed to the high end of conflict. I contend this is one means of effectively moving across the spectrum of conflict.

The following two recent examples illustrate how improved or emerging capabilities can help facilitate movement along the spectrum of conflict. The first was when Hezbollah successfully shot an Israeli Corvette with a C-802 anti-ship cruise missile (an Iranian version of the Chinese Silkworm) in July 2006 during their 34 day conflict.[2] The second recent example includes the Sri Lankan discovery of rudimentary submarines and suicide pedal boats all constructed at a secret Tamil Tiger camp as well as the Sri Lankan shoot down of two rebel light attack aircraft.[3] Though some of these weapons, in the case of the Tamil Tigers, were of poor construction and might not inflict great harm it suggests that an ill-equipped insurgency can still cross the spectrum of conflict and attempt to develop or co-opt a technology usually reserved for high-end conventional operations. These examples illustrate organizations when given the means can threaten an adversary even if that adversary is conventionally superior. Moreover, these examples suggest that future U.S. adversaries will continue to seek emerging and improved capabilities to counter the U.S. all along the spectrum of conflict in order to counter U.S. superior conventional capability.

This model also makes it easier to envision places along the spectrum where asymmetric tactics and strategies have exposed gaps in our conventional capabilities. Anti-access strategies being developed by both China and Iran highlight gaps between our short and medium range tactical air forces (tactical fighters and tactical air from carrier battle groups) and our long range forces (intercontinental range bombers, missiles and theater ballistic missiles). At the lower end, the U.S.'s 'Long War' is revealing a gap between the special operations air forces and the lower end of the U.S. tactical air forces.

China's power has been on an upward trajectory for the past decade, with that rise are some potentially disconcerting consequences. Some make predictions about China's regional hegemonic ambitions as well as designs on achieving an active defense and denial of the Pacific Rim, ostensibly to deny the U.S. access to the Western Pacific. One notable strategy providing the means for an anti-access capability is one termed the Assassin's Mace. Assassin's Mace is the English translation of the Chinese word "shashou jian"; the concept of using an overwhelming force, in the case of China, a highly technical capability to overwhelm an adversary. One of the best examples comes from former Soviet dissident Lev Navrozov, "let us imagine that the United States had nuclear weapons not in 1945, but in 1941, when Japan attacked the United States at Pearl Harbor. Then U.S. aircraft would have dropped two atom bombs on Japan immediately thereafter, and Japan would have surrendered unconditionally. This is shashou jian."[4] The relevance of shashou jian to anti-access is by using a highly technical means, such as precision-guided ballistic missiles to deny the Air Force forward basing in the Pacific Rim. A ballistic missile threat to U.S. bases and U.S. carrier battle groups in the area could render the U.S.'s short-range tactical aircraft impotent. A 2007 Rand study stated the following: "The Air Force's planned investments in new combat aircraft implicitly reflect the belief that forces will be able to deploy forward and conduct high-tempo operations from air bases in the theater of conflict. Such assumptions seem increasing untenable."[5]

To deter the nascent rise of Chinese military power requires the U.S. to support and reinforce our key partners and allies in the region and to continue forward military presence to support this approach. As alluded to in the previous paragraph, the most difficult of the above may be continuing a forward military presence as China's ability to deny access improves. If

China's military power continues unchecked and the U.S. continues to see China a successfully denying access to the Western Pacific, should the U.S. continue to pursue the same force structure strategy built around the short-range land and sea-based tactical fighter/bomber? Should the U.S. military pursue long-range strike systems to hedge against this Chinese anti-access strategy?

Another challenge may come from an Iranian bid for regional hegemony. The U.S. and its ally's vital interests in the Persian Gulf become more complicated if and when the Iranians develop a nuclear weapon and the means to deliver it. Recently, Chairman of the Joint Chiefs of Staff, Admiral Michael Mullen stated, "We think they do, quite frankly, have enough fissile material to make a bomb."[6] Secretary Clinton predicted additional pessimistic news, that it is "very doubtful" a U.S. approach will persuade Iran to relent on its nuclear ambitions.[7] A nuclear Iran with a delivery capability changes the calculus for forward basing in the Gulf and the U.S. may have to accept significant risk while conducting operations in both the Persian Gulf and Afghanistan.

A nuclear capability may not be the only threat to Persian Gulf access an Iranian hegemon might pose. Similar in some respects to China, the U.S. may have to deal with a nuclear Iran capable of employing numerous means to deny the U.S. and the U.S.'s trading partner's naval access to the Persian Gulf. Already, the Iranians have systems and capabilities in place such as: anti-ship missiles from land, sea and air; medium range ballistic missiles designed for use against carrier battle groups; small boat swarming tactics; submarines and UAV's providing surveillance.[8] These forces according to a Washington Institute study, "…are aimed at deterring an American attack and—in the event of hostilities—entrapping and destroying U.S. naval forces in the Persian Gulf, at which time U.S. regional bases would be

targeted with rocket and missile strikes as well."[9] It is not only naval anti-access that Iran seeks; U.S. airpower dominance in the region may be in jeopardy.

Iran is potentially developing an anti-access threat to U.S. air power not only in the Persian Gulf but may also threaten U.S. air operations in the outlying region. Russia is reportedly selling the S-300 surface to air missile system to Iran. This system will likely change the balance of air power in the region in two ways. The first is the ability to deny access and close the window of for the Israeli Air Force to carry out a powerful airstrike on Iran's nascent nuclear capabilities.[10] The other concern is how this advanced system could change the way the U.S. operates in the theater; the U.S. may no longer have unfettered access to the Persian Gulf, Iraq and Afghanistan. Thus, is U.S. force structure balanced properly to counter this anti-access strategy?

The final challenge facing the U.S. Air Force is its role in "Long War." In a recent *Foreign Affair* article, Secretary Gates wrote, "The United States' ability to deal with future threats will depend on its performance in current conflicts. To be blunt, to fail—or to be seen to fail—in either Iraq or Afghanistan would be a disastrous blow to U.S. credibility, both among friends and allies and among potential adversaries."[11] This quote helps clarify the recent rhetoric about these current conflicts. The U.S. may be seriously damaged, in fact beyond repair, if we do not appear to be winning now or in the future. The Secretary of the Air Force recently reiterated the Air Force's commitment to winning the current wars when he stated "…the Air Force is 'all in' for today's joint fight."[12] The Air Force is all in, has been a key joint enabler and continues to deftly support the joint fight through its core strengths of global vigilance, global reach and global power; however, is the U.S. Air Force properly structured for the "Long War?"

The "Long War" for the U.S. Air Force started in 1991 with Operation DESERT STORM. Since 1991, the Air Force has been conducting continuous operations in the region and these operations have taken a tremendous toll on an already aging fleet. The recent decision to draw down the U.S. combat forces in Iraq and increase the combat forces to Afghanistan will require joint enablers, such as Air Force cargo aircraft. The Air Force was tasked recently to deliver about 300 Stryker combat vehicles to Afghanistan. Even more significant is a concept conceived by Lt Col Samuel Hinote and that is of a drawdown asymmetry.[13] As there is a significant drawdown of ground forces in Iraq, there will not be a commensurate drawdown of air forces, and in fact there may be an increase. "Failure to ensure the safety of coalition forces or the sovereignty of Iraq's airspace would have such severe consequences that decision makers will conclude that air forces cannot leave at the same rate as ground forces."[14] Hinote goes on to describe that they will require such capabilities as: mobility; intelligence, surveillance and reconnaissance; lethal effects; combat search and rescue; aeromedical evacuation; and critical command and control in support of airspace sovereignty. "As long as significant numbers of coalition ground forces are present in Iraq, they will need the support and protection that airpower provides."[15] So if the Air Force is 'all in', what more can it do in order to balance its force structure to continue to fight the 'Long War'?

Notes

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[2] Shanker, Thom and Mazzetti, Mark. "Arming of Hezbollah Reveals U.S. and Israeli Blind Spots." *The New York Times*, July 19, 2006.

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[12] Brown, Patrick. "Leaders address issues at AFA symposium ." *Air Force Link.* March 3, 2009. http://www.af.mil/news/story.asp?id=123137920 (accessed March 10, 2009).

[13] Hinote, Clint. "The Drawdown Asymmetry, Why Ground Forces Will Depart Iraq but Air Forces Will Stay." *Strategic Studies Quarterly*, Summer 2008: 31-62. P.32

[14] Ibid. P.39

[15] Ibid. P.39

Chapter 3

Force Structure Recommendations

Next, I want to offer a few air power force structure recommendations that fill in potential gaps at both the higher and lower ends of the conventional scale. At the upper end of the spectrum, I recommend a new long range bomber to counter current and future anti-access designs by both China and Iran, which eventually may be the cornerstone of any conventional deterrence. At the lower end of the spectrum and as a partial solution to our 'Long War' strategy, I recommend developing and fielding a counterinsurgency (COIN) aircraft that serves the dual function of operating in the U.S. military and as an export model used in partnership building capacity and foreign internal defense. However, trying to fill these two gaps comes at a price. The current financial crisis may make either option unpalatable considering that the current political environment is in favor of stopping other large programs such the F-22 and making downward adjustments to the number of F-35's the U.S. might acquire. If the cost of the increased force structure for these two systems faces a zero sum budget, then a balance needs to be struck and other systems might necessarily face reduction.

COIN Aircraft

In the last several years there have been several research papers advocating and proposing the requirement, development and procurement of a COIN aircraft. I recommend the development of a COIN aircraft to fill in the gap at the lower end of the spectrum of conflict. Why the need for another weapon system? Major Brett Blake discusses elements such persistence, cost and foreign internal defense (FID)[1] and Major General Charles Dunlap points to the need for precision and persistence in COIN air power.[2] Persistence is paramount in a counterinsurgency, as with having the ability to have boots on the ground, you must have that same ability airborne; the ability to have an airborne strike capability all over the battlefield. Having this capability is a critical multiplier; not having that capability is critical weakness. "Insurgents have a pretty good idea of how long it takes for close-air support to arrive…We've seen some indications that they will fight for as long as they believe they have until close-air support will likely arrive on scene."[3] The only answer to this is to have this persistence all over the battlefield; however this takes large numbers of aircraft and cannot be accomplished with today's limited numbers of front line fighter/attack aircraft. "The density of coverage with these assets is not sufficient to cover everywhere they need to be, reducing our capability to win in the eyes of the insurgents and terrorists. To achieve persistent coverage requires large numbers of aircraft and using aircraft such as F-15E's and F-16's is simply not cost effective for the results obtained."[4]

There is not only an issue of cost effectiveness related to persistence but also two other cost savings: the direct cost savings of operating a COIN aircraft and the indirect cost savings of operating a COIN aircraft in place of current fighter/attack aircraft. The operational cost of operating a COIN aircraft vice a legacy fighter is quite striking. Major Blake details the cost,

"The average flying hour costs in Fiscal Year 2007 for fighter aircraft most used in GWOT [Global War on Terror] are as follows: the A-10 costs $4,864 per flying hour, the F-15E costs $13,991 per flying hour, and the F-16C costs $6,649 per hour."[5] The AT-6, one of the proposed COIN aircraft has an hourly cost of only $700. And as Major Blake has argued, "Identifying and fielding systems and methods that can combat terrorists cost effectively will likely be an important challenge to overcome."[6]

The other aspect of cost is the indirect cost of using current fighter/attack aircraft in the current combat environment. The typical target sets are not necessarily matched with the overwhelming capability of current fighter/attack aircraft. These fighter aircraft are the workhorse of U.S. conventional capabilities and are flying a tremendous number of sorties and hours, more than 30,000 sorties alone in 2007 supporting operations in Iraq and Afghanistan.[7] Much of this produces additional wear and tear on the aircraft and necessarily reduces the operational lifespan. This additional cost is critical as the U.S. Air Force undergoes much needed recapitalization challenges with its tactical fighter force.

Air power makes another important contribution to COIN through FID. Author T.X. Hammes states, "As far as getting the balance right in the force for low intensity conflict…the biggest shortfall is military advisors."[8] The Air Force has done significant work in the area of FID. Air Force Special Operations Command has robust and growing FID mission; it trains partner nations in all aspects of air operations including COIN. Additionally, the U.S. Air Force has enjoyed considerable success in the stand up of its transition teams in Iraq and Afghanistan, ostensibly to rebuild both countries' air forces; however in the longer term they are building partner capacity and an important capability to conduct COIN air operations in their own countries.

Which aircraft the U.S. Air Force procures is less important than the capability it procures. The idea of a COIN aircraft purchased in sufficient numbers in order to provide the all important persistence over the battlefield and to provide nascent partner and coalition air forces with a fundamental capability will increase both U.S. and coalition ground forces effectiveness. The key to achieving persistence is the number of aircraft, therefore procuring an inexpensive aircraft in significant numbers will achieve this goal.

Long Range Strike System

The Long Range Strike Capability I propose as a hedge against China's anti-access strategy was already addressed in the 2006 Quadrennial Defense Review (QDR). "Develop a new land-based, penetrating long-strike capability to be fielded by 2018 while modernizing the current bomber force."[9] The Air Force Chief of Staff, General Schwartz acknowledges the need for a new bomber, "There is a need…for a penetrating platform that can surveil and strike and so on…."[10] However; Secretary Gates recent comments at the Air War College seem to place the entire development of a manned bomber into question. He stipulates that the decision on the next bomber is one of the determinations the next QDR must fulfill, but mentions in context that a 3,000 mile unmanned aerial vehicle may be sufficient.[11] This statement does not obviate the need for a new bomber aircraft; however, it might highlight some questions about the requirements of a long range strike capability.

The next generation bomber program is a significant hedge against both China's and Iran's anti-access designs by being able to launch from distant bases and penetrate a high-end conventional anti-access capability. It seems that 2018 may no longer be the target however, "We need not to emphasize timing so much…Whether it is 2018 or not…is less important to

me than having a viable, manageable program, which will actually deliver."[12] Barry Watts suggests that the U.S. needs this aircraft in the early 2020's and recommends, based on certain nuclear scenarios, that the aircraft have protective capability against electromagnetic pulse.[13] Watts presents six scenarios that should steer requirements for the new aircraft; four of the scenarios are germane to the anti-access problem with both China and Iran. The requirements Watts lays out are: the ability to reach targets deep into defended airspace from the last refueling point, intercontinental distances in the case of no forward basing; the ability to survive and persist in defended airspace to strike time-sensitive targets and finally, the ability to strike from beyond any reach of anti-access capabilities.[14] A Center for Strategic and International Studies report on the 2018 Bomber argues that "The capability needs for the 2018 Bomber are driven by three principal scenarios: addressing the challenge of a large, high-end competitor; conducting intense conventional campaigns against medium powers with hi-low military capabilities; providing long-duration air support missions in low-threat environments."[15] A timeline aligned with the early 2020's is congruent with Chinese writings on developing into a truly great power.[16] The next generation bomber is one important hedge.

Notes

[1] Blake, Brett, Major, USAF. "AT-6-The Best USAF Investment for the Long War." Maxwell Air Force Base, Alabama, April 2007. 27.

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[5] Ibid P.11

[6] Ibid P.6

[7] Cordesman, Anthony. "Air Combat Trends in the Afhan and Iraq Wars." *Center for Strategic and International Studies.* March 11, 2008. www.csis.org (accessed March 7, 2009).

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[15] "U.S. Air Force Bomber Modernization Plans: An Independent Assessment." Center for Strategic and International Studies, 2008, 26.

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Chapter 4

Conclusions

The future threat environment the U.S. faces is mostly unknown; however the U.S. does know that it has two current wars still requiring significant support from the Air Force and a future environment complicated with determined anti-access capabilities. The paper presented a novel approach to the spectrum of conflict and attempted to template it against China, the Persian Gulf and the U.S.'s "Long War". From that, the paper highlights two significant gaps in force structure the Air Force needed to fill. It also made two distinct recommendations: long-range strike as a hedge against both Chinese emergence and a future Iranian hegemon and a COIN aircraft for the U.S.'s current and future COIN. Both of these recommendations were intended to fill in air power capability gaps revealed by a novel spectrum of conflict model. In the end it would be wise to keep in mind the following from Colin Gray who argued that when embarking on defense planning, "Try to make small mistakes rather than big ones; be adaptable and flexible so that you cope with the troubles your mistakes will certainly give you; aim to have only minimal regrets in the future."[1] I contend these recommendations follow Gray's advice.

Notes

[1] Gray, Colin. "The 21st Century Security Environment and the Future of War." *Parameters*, Winter 2008-2009: 14-26.

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